FARM INDEX

U.S. Department of Agriculture
August 1977

U.S. Agriculture Eyes China

Outlook

Finding markets for bumper harvests is uppermost on the minds of America's farmers. Wheat production looks to be the third largest in history . . . bin busters for feed grains and soybeans . . . much bigger cotton crop than in past few years.

Stocks are mounting quickly. Economists see wheat supply in 1977/78 bulging to a new record, plus sharp increase in feed grain stocks. Rice supplies will continue to outpace demand.

Hands across the waters. One pressure valve is the export market. Harvest from 1 in 3 acres moves abroad these days. Recent trade has looked good, too, but the future is less bullish.

Record sales in fiscal 1977. Value of U.S. farm exports, by the July forecast, will shatter all records in the current fiscal year ending September 30. Estimate is $24 billion, more than $1 billion over last year. Much of the credit goes to expanded shipments and better prices for cotton, plus higher prices for soybeans and soybean products. Also doing well: exports of U.S. vegetables, nuts, and many animal products.

Off year for grains. But U.S. grain exports—mainly wheat—have been disappointing, due to abundant supplies here and overseas. U.S. wheat exports for the marketing year ended May 31 dropped a fifth from last season. Feed grain exports for the year ending October 1 are also down a bit. Export prices for U.S. grains are sagging . . . possibly 10 to 15 percent under fiscal 1975/76.

More gloom. Combined value of U.S. agricultural exports could sink in fiscal 1978. USDA economists expect larger crops of soybeans and cotton in the U.S. and abroad. Another large world grain crop is likely, and grain prices may dip further. Drop in wheat and coarse grain exports could be as much as a tenth in volume from this fiscal year's.

Balancing trade. Trade in U.S. farm products has produced a healthy surplus for the U.S. economy of around $12 billion annually. This year, however, that balance may decline to $10 billion, because of the jump in farm imports from the hefty gain in coffee prices. Even so, agriculture has done its share for the U.S. trade account. Total U.S. trade deficit may run nearly $25 billion this fiscal year (due in large part to rapid growth in petroleum imports) but it would be considerably more were it not for the kick from U.S. farm exports.

Export expansion. In developing new farm legislation, the Carter Administration has recommended market price supports designed to improve our competitive position in world markets for grain, oilseeds, and cotton. Ways are being sought to gain greater market access through reducing trade barriers, promoting long-term trade arrangements advantageous to the U.S., and establishing grain reserves to facilitate steady growth of grain exports. Officials are studying the role of food aid in enhancing nutrition and development, short-term credit as an export expansion tool, and the potential for bilateral trade agreements.

Other actions. The Commodity Credit Corporation (CCC) credit program has been revitalized. Fiscal 1977 CCC exports are budgeted at $1 billion, up from $618 million in fiscal 1976 and only $249 million in 1975. The P.L. 480 program calls for food aid exports valued at $1.2 billion, up from $831 million in 1976. Grains will comprise about three-fifths.

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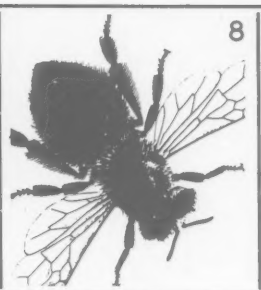

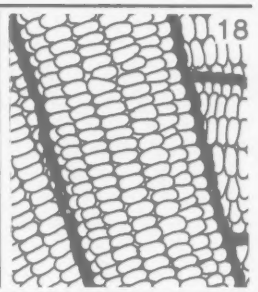

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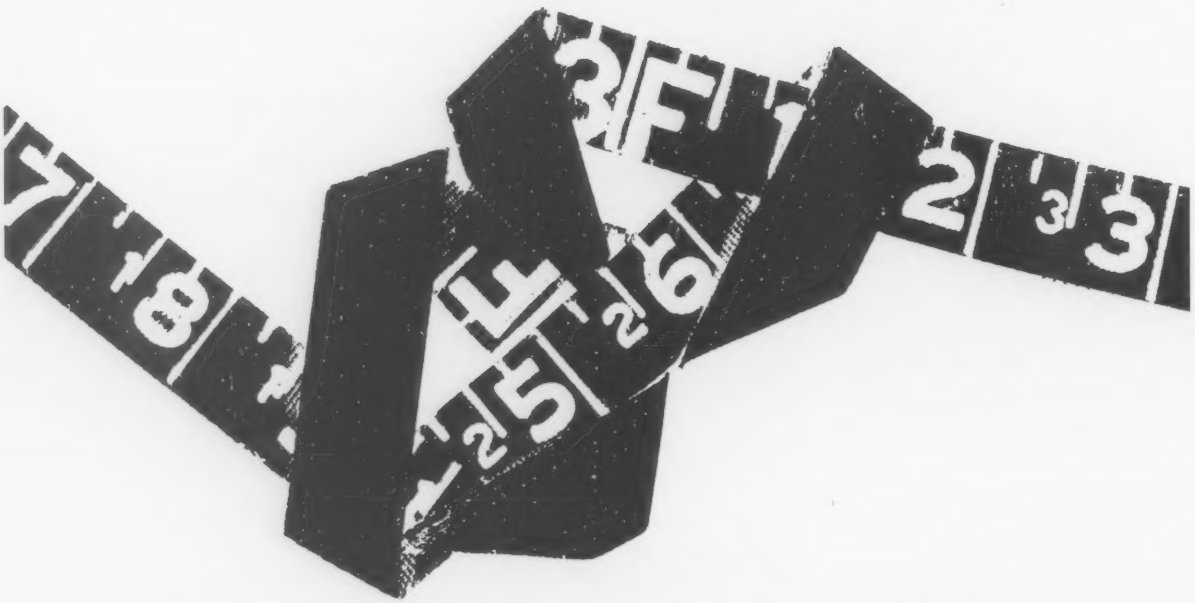
Going Metric



With a practiced eye, the Nebraska farmer sizes up his field of ripening corn, smiling at the prospect of a fine harvest.

Turning to his son, he says, "I'd say we'll reach about 90 bushels an acre."

"Oh, you mean 6 metric tons per hectare," the lad answers.

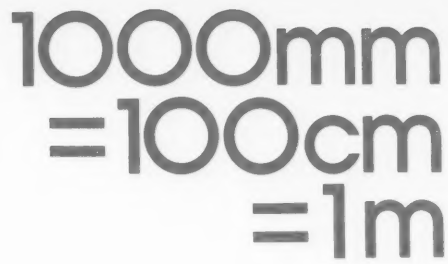
Such exchanges may become common as America undergoes a transition to adopt the metric system in the next few years.

Although the final switchover date hasn't been selected, eventual conversion was assured in late 1975, when a law establishing a board to coordinate voluntary conversion to metric measurement was enacted. When conversion is achieved, every major industrial nation will be using the metric system. The U.S. is the last to go metric.

Conversion benefits. Advocates stress that conversion will, in the long run, enhance foreign trade and save millions of dollars:

- The British, who only recently decided to convert to metric, estimated in 1960 that the simpler metric system would reduce the amount of teaching time required for arithmetic by a fifth, for children aged 7 to 11.
- Savings in engineering time in the U.S. aerospace industry alone could amount to $65 million a year, according to a 1971 study.
- Savings in the U.S. food and agricultural system could come from improved market efficiency through metric standards. The present system allows for some complicated variations: A bushel of wheat weighs 60 pounds, corn is 56 pounds, 32 pounds for oats, and 32 to 60 pounds for barley—depending on State laws.
- International trade for such measurement-sensitive products as machinery and scientific instruments would be enhanced by conversion.
- Agricultural trade will benefit in the long run, since international trade patterns developed by measurement-sensitive commodities will eventually affect agriculture.

Costs entailed. Despite such advantages, the conversion process does entail some costs. Physical changes, such as modifying or purchasing new scales, rulers, measuring tapes, and containers, will require investments.



During transition, farmers and agricultural businessmen will have to keep two sets of tools. And time, money—and infinite patience—will be required to teach people the new system.

However, cost to agriculture for the physical switchover will be relatively low, compared with other industries.

Measurements for some agricultural assets, such as farm buildings, equipment, tools, and machinery will change slowly—and some may never change. In most cases, existing equipment will be used until it needs replacing, then new metric models will be phased in.

Four basic units. The agricultural industry has still another advantage, in that, for the most part, only four metric units will be used in measurements: Kilograms for weights, liters for liquid and dry products, meters for lengths, and Celsius for temperature. Let's take a close look at these four main units:

Kilogram. Used to measure mass (weight), a kilogram is the mass of a liter of pure water at standard temperature and pressure. The kilogram equals 2.2 pounds.

Liter. Defined as one-thousandth of a cubic meter, a liter is the standard measurement of volume. A liter equals 1.057 quarts.

Meter. The keystone of all metric units, the meter measures length. Originally, it was defined as one ten-millionth of the length of the line of longitude from the equator to the North Pole which passed near Dunkirk, France. Now, the meter is measured as a fraction of a wave length that can be reproduced in a laboratory to check the standard. A meter equals 1.094 yards. Example: a 100-meter football field would measure slightly more than 109 yards.

Celsius. Based on a scale ranging from the freezing point (0 degrees C) to the boiling point (100 degrees C) of water, Celsius temperatures can be converted to Fahrenheit by multiplying Celsius by 9/5 and adding 32 degrees Fahrenheit.

Everyday metric use. Of course, since farmers and agribusiness men are also a part of the general American public, they must master other units of the metric system for everyday living.

The metric system consists of 7 basic units, 2 supplementary units, 16 derived units having special names, and 13 other derived units without special names.

The seven basic units, which include the meter, the kilogram, and the Kelvin (Celsius), also consist of ampere for electric current, the second for time, candela for light intensity, and mole for molecular substance. Fortunately, Americans already use seconds and amperes; and candela and mole have a restricted possible application that lessens their everyday importance.

Scientists' problem. Perhaps another boon to Americans who must learn the system is that the 16 derived metric units having special names are used mainly by scientists. They are rarely used in agriculture, or in everyday society.

Of the 13 other derived metric units without special names, the most commonly used are the square meter for measuring area, and cubic meter for volume.

A square meter is a ten-thousandth of a hectare (hectometer), which is the standard unit of measurement for farmland. A hectare equals 2.471 acres.

While all of this requires some mental adjustments for most Americans, the metric system is supposedly simple and logical, once you get the hang of it.

Multiples. Except for the standard unit of time, larger or smaller measures of any given metric unit can be obtained by multiplying the unit by multiples or submultiples of the powers-of-10.

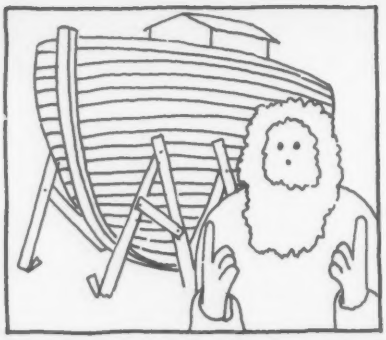
For example, 1 kilometer equals 1,000 meters; and 1 meter equals 1,000 millimeters.

Since the system is based on the decimal number system—based on the number 10—it is far more simple to convert larger to smaller measures, and vice versa.

To illustrate: If a person wishes to convert 1.234 kilograms to grams, he need only move the decimal point over three places to the right to find that 1.234 kilograms equals 1,234 grams.

The simplicity of the metric system becomes even more striking when compared to current conversion problems.

Simple metric use. If a person wished to add two lengths of rope, one 5 feet 6¾ inches, and the other 7 feet 8⅞ inches, the process is lengthy: First, fractions must be converted to equivalent fractions with a common denominator and added (¾ plus ⅞ = 6/8 plus ⅞ = 13/8). Then, the improper fraction is simplified to 1⅝. Next, the 1⅝ inch is added to 6 and 8 inches to total 15⅝ inches,



which is converted to 1 foot 3⅝ inches, which is added to 5 feet and 7 feet. At long last, the length of the two ropes is found to be 13 feet 3⅝ inches.

Using metric equivalents, one rope is 1m 695mm, and the other is 2m 395mm. Simply by inserting a decimal, the lengths are converted to meters: 1.695m and 2.395m. Simple addition provides the combined length in meters as 4.090. By multiplying numbers right of the decimal point by 1,000, the figure is further converted to 4m 90mm.

Stepping to metric. Although conversion to the metric system won't happen overnight, concrete steps are being taken already to institute it:

- USDA now reports crop yields in metric units.
- The Maritime Administration has required that all ships be built to metric specifications by 1980.
- By 1979, wine must be bottled in liter and half liter containers.
- Schools in all States now use the metric system. Many plan to use it exclusively in the future.
- Some major private companies are planning metric conversion to boost foreign sales.

Meanwhile, the final signs of impending change will be springing up along America's roadsides next year, when metric speed limit signs are installed along interstate routes in States that voluntarily participate. Police will, of course, carefully enforce the national 88.495 kilometer per hour speed limit (55 mph).

[Based on the report, "Agriculture the Third Century: The Metric System," by Yao-Chi Lu and Douglas E. Bowers, National Economic Analysis Division.]

A Tale of Cubits and Kilometers

In his "Noah" routine, comedian Bill Cosby patiently listens to the Lord's detailed ark-building specifications, in which precise dimensions are given in cubits.

When the Lord pauses for a moment, "Noah" poses a pointed question: "What's a cubit?"

Since earliest times, the problem of communicating measurements has plagued mankind, especially when people of different cultures interacted in trade or construction.

A cubit, like most ancient measurements, is based on the application of a part of the human body. A cubit, to be somewhat exact, is the distance between elbow and tip of the middle finger—a measurement familiar to the translators who produced the King James Bible, if not to Noah.

Noah, of course, would have been familiar with similar measurements based on human feet, thumbs, and forearms—measurements that defied standardization.

After many ages of frustration, in which Egyptians, Greeks, Persians, Assyrians, and others bickered over measurements, the Romans conquered most of the western world and arbitrarily offered their own partially standardized measurements to govern trade.

Among the recipients of the Roman standards was Britain, a then-obscure Roman holding on the far reaches of the empire. The English meshed the Roman system with native measurements to produce the British system, which Americans still use—even after the English themselves moved to abandon it a decade ago.

Meanwhile, the French had devised the metric system in 1791, and the system quickly spread throughout Europe, as its logical and simple application won converts.

American participation fueled heated controversy at home, as opponents argued that conversion would be far more expensive than the value of benefits accrued, since most U.S. trade was conducted with British measurements.

Then, in 1957, the Soviets launched Sputnik and challenged America's technological abilities. The resulting national emphasis on research and development stirred a new advocacy of metric measurements. At about the same time, the European Common Market began increasing metric use, thus offering greater international trade incentive for metric adoption.

As the drive for metric conversion mounted, Congress commissioned a 3-year study of the metric system in 1968. The study, completed in 1971, concluded that conversion was inevitable—and that the sooner the U.S. accepted metric, the better.

The inevitability was vividly illustrated in 1965, when the British chose to convert to metric. As the British Commonwealth followed suit, the U.S. became the last industrialized nation to cling to a nonmetric system.

When Congress established the National Metric Board on December 23, 1975, to guide voluntary conversion to the metric system, the gradual, voluntary conversion to metric use during the next few years was assured.

[Based on "Agriculture the Third Century: The Metric System," by Yao-Chi Lu and Douglas Bowers, National Economic Analysis Division.]

Changes in Beef Standards Make the Grade

Changes in beef grading standards have helped beef sellers without costing consumers more at the supermarket, according to a before-and-after comparison of beef grades and prices.

While "sellers" refers to packers, stockyards, and other meat sellers, rather than farmers *per se*, farmers should, in the long run, also receive more equitable prices.

The grading standards—changed in February 1976—allow larger premiums and discounts for cattle of differing yield and quality grades. So, sellers with highest yield beef are getting higher prices for those carcasses than they might have gotten under the old system—even though the price for beef overall has dipped in the last year. Of course, lower yield beef is bringing lower prices than it might have.

Premiums and yields. The premiums paid for highest yield beef have not shown up as price increases at the retail level though. This is because carcass yields affect the packer through realization of retail cuts, but does not affect retail weights.

The changes in grading mean that Prime and Choice grades now include slightly leaner beef than they used to. Also, Good grades are more restrictive; eating characteristics are more uniform in each grade; and all beef graded must be identified now for both quality and the percentage of retail cuts that can be taken from the carcass.

More efficient pricing. The result has been "improved price efficiency"—meaning that farmers are receiving prices based more on the actual quality of the carcass than before.

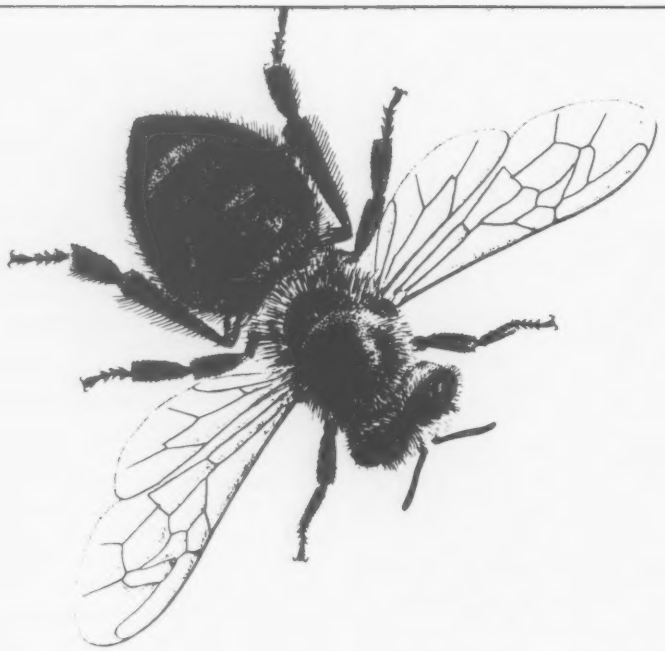
Other effects of the grading changes include:

- A significant redistribution of the volume of beef graded among the various grade classes. The amount of beef graded Prime is now up 2 percentage points; Choice is up over 1½; and Good is down nearly 3½.
- Demand for beef has not slowed significantly as a result of the grading change.
- The estimated weighted average carcass price change was only about 8 cents per cwt.—a negligible amount. Within the grades, however, some changes were more significant: Prime was unchanged; Choice was up 23 cents; and Good was down 96 cents.

These findings are based on information from 25 classes of steer and heifer carcasses as reported in the Midwest, east coast, Amarillo, and Los Angeles markets, along with price information published by the Agricultural Marketing Service for January 1974-August 1976.

One goal met. After a survey of the data, ERS researchers conclude that at least one goal of the grading changes has already been met: Sellers are receiving prices for their beef that more closely reflect the quality of the carcasses, while consumer demand has not been affected. [Based on *Economic Effects of the 1976 Beef Grade Changes*, Technical Bulletin 1570, by Kenneth E. Nelson, Commodity Economics Division.]

The Bee: An Agricultural Dynamo



The buzz of a bee may be a disconcerting sound to many people, but to a lot of farmers, it is sheer music. For without the busy little insect, some crops wouldn't get pollinated, others wouldn't be as productive, and there would be no honey.

But fortunately, the bee hasn't gone the way of the extinct passenger pigeon. The species is still very much alive, although it has become increasingly threatened by its No. 1 enemy—pesticides. In fact, largely due to pesticide poisonings—although low honey prices have been partly responsible—the U.S. honeybee population (excluding wild bees) dropped from nearly 6 million hives in 1947 to just over 4 million in 1972, the decline having accelerated after 1965. Since reaching a low in 1972, the population has edged up a bit, however, due to better honey prices and a Government program for indemnifying beekeepers who suffer pesticide damage.

Pesticide plague. Bees have been plagued by pesticides in the U.S. since the turn of the century. The problem really came to light when large numbers of bees were poisoned from arsenic-based sprays on fruit trees. As a result, several States passed laws which prohibited spraying trees in bloom.

Another surge of pesticide damage to bees came during the late 1920's with large-scale mechanical application of calcium arsenate on cotton and other crops. This wave lasted until the mid-1940's, when farmers shifted to DDT—which despite its danger to humans is one of the lesser toxic pesticides to bees.

By the 1960's, farmers began to decrease their use of DDT because of environmental concerns—a fateful situation as far as bees are concerned, for highly toxic phosphates and carbamates have taken their place.

And in 1975, toxic time release pesticides were introduced on the market. These have proven particularly deadly as it appears that the spray particles are carried back to the hive along with pollen, where the time release action endangers the whole hive, particularly the brood, for a period of weeks. (There is no evidence, however, that the toxicity is transmitted to the consumer through honey.)

The bee industry. To get an idea of just how big an economic problem pesticide damage to bees really is, let's first look at the bee industry itself.

According to the International Trade Commission, there were over 211,000 beekeepers in the U.S. in 1975. However, about 95 percent of these beekeepers were classified as hobbyists—owning less than 25 hives each.

Most of these hobbyists keep bees for small-scale pollination of orchard and field crops or for honey production, mainly for home use or as gifts. Hobbyists generally receive a much lower honey yield per hive than do their commercial counterparts.

The next group of beekeepers are part-timers, those who maintain at least 25 hives, but fewer than 300. About 10,000 beekeepers fell into this category in 1975. Many of these operators are retired or elderly, and sell most of their honey directly to retail markets.

Commercial beekeepers. The last group of beekeepers—the ones who depend on bees for a living—numbered about 1,600 in 1975. Although they accounted for less than 1 percent of the country's beekeepers, they turned out almost 60 percent of the honey produced and provided most of the pollination services to crop growers—particularly the large-scale ones.

These commercial beekeepers fall into one of two groups: migratory and nonmigratory. Most of them are migratory, relocating their bees 3-5 times or more during the growing season (traveling anywhere from a few miles to over a thousand) to provide pollination services, to reach the most abundant sources of nectar, and often to escape pesticide damage. Another migratory group moves their bees twice a year—to the Southeast or Southwest in the winter, and to the North in the summer.

Stationary hives. The nonmigratory beekeepers, as the category suggests, leave their bees in the same yard, summer or winter. In the North, however, the bees often require supplemental feeding (generally of sugar). And if that proves too expensive, the bees are killed in the fall, the honey removed, and the hives restocked the following spring.

Another group of nonmigratory beekeepers is the few who specialize in producing "package" bees. Operating a multimillion-dollar business, these beekeepers produce hundreds of thousands of "queens" and hundreds of tons of "workers" each year for shipment throughout the U.S. and Canada. Most of these beekeepers are located in the southern States and California, where the mild winters and early springs are ideal for populous bee colonies.

Honeybee States. Geographically, the most colonies of honeybees are found in California, Texas, and Florida, with each State having over 200,000 hives. States with the next greatest numbers of bees—100,000-200,000 hives—are Idaho, South Dakota, Nebraska, Missouri, Minnesota, Wisconsin, Michigan, Ohio, Tennessee, Georgia, North Carolina, and New York.

During 1971-75, the Nation's bees produced an average of 206 million pounds of honey a year, ranging from 238 million in 1973 to 185 million in 1974. Also, about 3.7 million pounds of beeswax went to market each year.

As indicated by the above figures, honey production and yields vary widely, depending on rainfall, soil conditions, temperature, various other environmental factors, management, and honey prices. During

Where the Honeybees Are

Alaska, Hawaii, Puerto Rico, and the Virgin Islands each have fewer than 50,000 colonies.

Based on 1975 statistics.

1971-75, for example, the annual output of honey per hive ranged from just over 44 pounds in 1974 to almost 58 in 1973. The average yield was nearly 50 pounds.

With the shortfalls in honey production in 1974 and 1975, honey prices have remained high. In fact, the value of the 1975 honey and beeswax output has been estimated at nearly $103 million—a figure second only to 1973's record.

Crop pollination. In addition to the obvious economic value of honey, bees make a big contribution through crop pollination. In 1975, they pollinated agricultural crops valued at $8 billion.

And although a few other insects spread pollen as they visit blossoms, the honeybee is the most efficient and the only dependable pollinator. That makes him a mighty important creature, since around 15 percent of the plant-derived portion of our diet comes from plants dependent upon or benefited by insect pollination (see table). And, too, most of the livestock products we eat are produced from animals which once consumed insect-pollinated legumes such as alfalfa, clover, etc. Therefore—one way or another—about one-third of our diet comes from insect-pollinated crops.

Profit balance. Although the value of crop pollination is high for agriculture as a whole, most beekeepers get far more money from selling honey or beeswax than from pollination services. The exception is some commercial beekeepers in New England, the Middle Atlantic States, Florida, and Texas, who derive most of their income from pollination fees. Also, a few large commercial beekeepers in the Pacific Coast States get about one-third of their income from such fees. Elsewhere, though, this income is generally insignificant.

Therefore, pollination fees alone are basically not incentive enough to economically justify beekeeping. Hence the situation that although the demand for insect pollination is increasing, the number of bees is decreasing.

Also, beekeepers are aware that their bees are often in the greatest danger from pesticides in areas where pollination services are most needed. For example, in California's fertile San Joaquin, Sacramento, and Imperial Valleys, bees are essential to pollinate the wide variety of crops. On the other hand, these same crops require extensive applications of pesticides each year which damage or destroy thousands of bee colonies.

Government's role. Here's where the government—both Federal and in many cases, State—has stepped in to try to lessen the impact of pesticide damage on beekeepers and ultimately the farmers who raise pollinated crops.

The State of California, for example, has a set of regulations which require that anyone applying pesticides must advise beekeepers (those who have hives within 1 mile of the site and have requested notification) of their intentions 48 hours in advance. Each beekeeper who desires notice must register with the county agricultural commissioner.

CROPS UNABLE TO PRODUCE A COMMERCIAL CROP WITHOUT CROSS POLLINATION [1]

Fruit and Nut Crops:

Almond
Apple—most varieties
Apricot—some varieties
Avocado
Cherry
Chestnut
Lychee fruit
Peach—some varieties
Pear—some varieties
Plum
Prune
Tangelo
Tangerine
Tung

Forage Seed Crops:

Alfalfa
Alsike
Berseem
Birdsfoot trefoil
Ladino clover
Red clover
Sanfoin
Crown vetch

Vegetable Crops:

Cucumber
Melon
Pumpkin
Squash

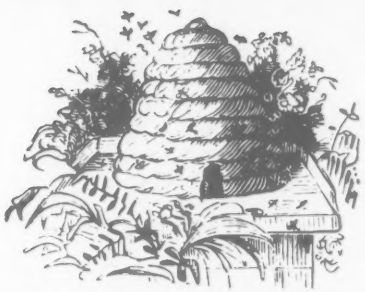
Vegetable Seed Crops:

Asparagus
Broccoli
Brussel sprouts
Cabbage
Carrot
Cauliflower
Celery
Chinese cabbage
Collards
Cucumber
Kale
Kohlrabi
Leek
Melon
Mustard
Onion
Parsley
Parsnip
Pumpkin
Radish
Rutabaga
Squash
Turnip
Watermelon

Tree Seed Crops:

Chestnut
Catalpa
Black locust
Red maple
Yellow poplar
Holly

[1] In addition, several other crops generally produce a larger crop when pollinated by honeybees. These include most other tree fruits and most berries, crimson clover, eggplant, flaxseed, safflower, and rapeseed.



The regulations have been credited with cutting pesticide losses sharply in California during the past 6 years. However, as far as the beekeepers are concerned, there are some logistical problems associated with either moving or confining their bees during spraying. As one commercial beekeeper there put it, "It's like playing musical chairs with 40 loads of bees."

Indemnity program. The Federal plan—the Beekeeper Indemnity Payment Program—was enacted by Congress in the Agricultural Act of 1970. However, retroactive payments were made back to 1967. The program was started after commercial beekeeping operations in the cotton-growing areas of California and Arizona were virtually wiped out from widespread spraying to control the pink bollworm.

Basically, the program authorizes indemnity payments to beekeepers who through no fault of their own suffer pesticide damage to honeybees. However, the payments do not cover all the costs involved in replacing damaged colonies.

To be eligible for payments, a beekeeper must have a colony of bees that fills up at least 400 square inches before July 1 and 600 square inches later in the year. In addition, the beekeeper must register his bees with the Agricultural Stabilization and Conservation Service (ASCS) by July 15 each year.

And in the event of pesticide damage, the bees must be inspected by ASCS inspectors to verify cause of death. (Even poisoning can occasionally come from such toxic plants as California buckeye, locoweed, and mountain laurel, although usually the symptoms are different from those caused by pesticides.)

Payment rates. In 1974, the program imposed a limit of only one payment per calendar year on any one colony of bees. Since then, the rate of payment has been $22.50 for each colony destroyed, $15.00 for each severely damaged, and $7.50 for colonies moderately damaged and for each queen nucleus destroyed.

During 1967-75, the Beekeeper Indemnity Payment Program made payments in excess of $18.8 million to over 2,600 beekeepers in the U.S. and Puerto Rico for over 2 million damaged bee colonies. For 1976 alone, nearly $3.5 million was paid for claims.

The program will likely be up for review by Congress soon, as the legislation authorizing it expires at the end of this year. If the program is not renewed, beekeepers would need to recover their losses through the market system—in the form of higher prices for honey and/or pollination fees (as packaged bees and beeswax only provide minimal income for most beekeepers).

At any rate, the future of many beekeepers will depend upon the following:

- The price of honey and pollination fees relative to production costs.
- The availability of adequate bee pasturage.
- The level of pesticide damage.

Research roster. And research developments could have a lot to do with the above. For example, experiments are underway with biological agents for controlling crop pests. Such agents would be welcomed by beekeepers, as their bees would not be harmed by these natural "pesticides."

Other research is being conducted to determine the actual contribution of pollination to production. For example, a study in the 1960's showed that highbush blueberries yield more, bear larger berries, and produce sooner when they are pollinated by honeybees. In fact, yields of up to 52 pounds per bush were obtained from bushes caged with the bees, compared with only 1.5-2 pounds without the bees.

Current pollination research shows that soybean production could be upped (by as much as 15 percent) from increased bee visits—even more if hybrid soybeans were used. The same goes for hybrid cotton seed production.

Other areas of research include dispensing pollen near the hive to induce cross-pollination; analyzing nectar production capabilities of important plant species, particularly legumes; planting nectar and pollen plants on reclaimed land; determining the influence of soil type and fertility on nectar secretion; and identifying the availability of major pollen sources throughout the U.S.

[Based on the manuscript, "Report on the Beekeeper Indemnity Payment Program," by Frederic L. Hoff, Commodity Economics Division, and on "A Suggested Program of Extension, Research, and Economic Analysis Related to Crop Pollination by Bees," by Hoff; E.C. Martin and M.D. Levin, Agricultural Research Service; and F.E. Westbrook, Extension Service.]

U.S. Agriculture Eyes China

While Americans were busy celebrating the Bicentennial last year, the Chinese were commemorating the Year of the Dragon—a time of historical importance in both countries.

For the Chinese, 1976 was a year of dramatic political changes, shifts in top leadership personnel—caused by the deaths of Communist Party Chairman Mao Tse-tung and Premier Chou En-lai—and several severe earthquakes.

These events caused a delay in the adoption of the new 5-year plan, which was scheduled to begin in 1976 (the plan could be approved sometime this year), and also apparently hindered the country's economic activity. China ended the year with little or no increase in the agricultural sector and only a modest expansion on the industrial side. Overall, the economy registered the lowest growth rate in recent years.

Crop production off. Agricultural production was off for just about every major crop last year, despite record investments in farmland improvement and construction. Bad weather was the culprit, especially drought in North and Northeast China, which affected wheat, miscellaneous grains, cotton, and soybean crops, and below-normal temperatures in South China, which damaged winter crops and upset spring planting and harvesting.

In an effort to eliminate a hard currency trade deficit—which had risen during the fourth 5-year plan (1971-75) to nearly $2.5 billion—the People's Republic of China (PRC) reduced its total imports in 1976 by more than 10 percent. As a result, the country ran a surplus in hard currency trade for the first time since 1972. Total exports were about the same as in 1975.

Grain imports down. The attempt to curtail imports fell heavily on agricultural products—particularly grains. (Grains typically account for nearly half of China's agricultural imports, with sugar, rubber, and cotton being other important items.) Total grain imports slumped to 2.1 million tons in 1976—down from 3.4 million a year earlier—nearly all of which were wheat. Cotton imports were relatively unchanged.

On the export side, China's rice and soybean shipments were off from 1975 levels. Japan—China's largest market for soybeans—received only

133,000 tons in 1976, compared with about 240,000 tons a year earlier. (In recent years, China's leading agricultural exports have been rice, live animals, meat and animal products, fruits and vegetables, and silk.)

Upturn in U.S. imports. As for U.S.-China trade in 1976, the most noticeable change was the rise in total U.S. imports from the PRC—up nearly 30 percent from 1975. The bulk of this increase was in agricultural products (which nearly doubled from the year-earlier level), with feathers and down, bristles, nuts, silk, essential oils, tea, spices, and cashmere being the most popular items.

Although providing only a small share of our total agricultural imports, China is now the third largest Communist exporter of farm products to the U.S., ranking behind only Poland and Yugoslavia.

Contrasting with the sharp jump in agricultural imports from the PRC, U.S. agricultural exports to China were negligible in 1976—about $44,000, nearly all of which was for onion seed. The low level of agricultural exports in both 1975 and 1976 reflects the temporary decline in total PRC imports during those years and also our present role as a residual supplier to the PRC—a role which could be subject to change.

Prospects for 1977. Since November 1976, China has bought 11.7 million tons of wheat. For all of 1977, imports may total 7 million tons. These purchases are well above those of 1975 and 1976, reflecting a combination of favorable world market prices, the probability that China's stocks may be down following 2 years of low imports, internal procurement shortfalls from the 1976 crop, and the impact of poor weather on 1977 crops. Some sales of U.S. soybeans, soybean oil, and more cotton are also possible (some U.S. cotton has already been sold).

As for the future of U.S.-China agricultural trade, a lot will depend on the political and economic policies adopted by China's new leaders.

Continuation likely. Various policy statements have indicated that the new authorities will probably pursue the longrun development strategy outlined by the late Premier Chou En-lai at the Fourth National People's Congress (NPC) in 1975. That strategy called for the basic mechanization of agriculture by 1980, and for the development and modernization of agriculture, heavy industry, national defense, and science and technology before the end of the century.

Although the NPC placed agriculture at the top of the list of pressing economic issues—a likely spot considering China's mammoth job of feeding more than 900 million people—other sections of the economy will have to receive more attention in the future. And this raises the question of competition between agriculture and other sectors—such as heavy industry and national defense—for capital investment.

No surplus revenue. In the past, China's agriculture has not been productive enough to generate surplus revenue for other economic sectors, due to the country's low level of modern technology, limited supplies of modern inputs, and the lack of basic agricultural research.

How China will elevate its technology depends, in part, on whether it will continue to rely almost exclusively on domestic technological developments or turn to increased purchases of modern technology from the West—such as the 13 large nitrogenous fertilizer plants that were purchased in 1973 and 1974. Eight of the 13 were bought from the U.S., and all utilize U.S. technology.

How China's Climate Compares with Ours

These North American locations have temperatures and rainfall somewhat similar to areas in China. Comparisons such as these can only be suggestive.

Possible trade changes. If China opts for Western technology, it would probably mean changes in the country's traditional imports and exports. For example, import items to raise productivity could include animal breeding stock, seeds, and pesticide and fertilizer plants. Eventually, technological know-how on large-scale feeding of livestock and poultry, and on processing of both animal and plant products, could also be imported.

The possible impact on PRC grain and feed imports is difficult to determine: It will depend largely on whether the basic economic policy of self-reliance is continued, on how the population grows in relation to total food production, and how quickly the country demands higher quality food items, and so forth.

Expansion of agricultural exports. While agricultural items will not make up the bulk of the PRC's total exports in the future, efforts will probably be made to boost such exports. Rice and livestock and animal products will likely continue to be top export items, while China will probably try to expand exports of textile products and fruits and vegetables.

Although the U.S. can provide all of the commodities and technological expertise the PRC might want, the future of agricultural trade between the two countries depends on how China decides to increase productivity, and, in a broader sense, overall U.S.-China relations.

[Based on *People's Republic of China Agricultural Situation*, FAER-137, May 1977.]

Farming in the PRC

While American farmers might envy the fact that agriculture's share of total national trade is greater in the People's Republic of China (PRC), they can take heart that they have a domestic population that's four times smaller to feed, and that they have a high level of technology with which to do it.

Chinese farmers, on the other hand, are faced with the tremendous task of feeding and clothing roughly one-fourth of the world's population from about 7 percent of the world's farmland.

Unlike the U.S., China has a centrally planned and developing economy. While U.S. farms are generally family owned and operated, almost all farmland in the PRC is closely controlled by the state.

By the same token, American crop production is influenced largely by current market prices, while crop production in China is undertaken mainly in response to centrally determined plans and quotas. Chinese farmers—organized into about 50,000 communes—jointly sell most of their marketable output to the state at fixed prices.

The commune members, however, are allowed to farm plots of land for their private use and are permitted to engage in household handicraft production—such as pottery making and woodcrafts—to supplement their incomes.

American farmers are also at an advantage in that there are more acres still available for bringing under cultivation in the U.S. than there are in China. Although the PRC's total land mass is slightly larger than that of the coninental U.S., limitations of climate, soils, and topography restrict the possibility of bringing much new acreage into cultivation. Today, nearly all the land that can be farmed in China is under intensive cultivation, while in the U.S., a portion of farmland lies fallow or is in cover crops.

Thus, increases in output in the PRC must accrue—as they have in the past—primarily from more production per unit of land now under cultivation. However, yields per acre of sown area have increased as a result of improved seeds, more fertilizer, irrigation, etc. Multiple cropping has also increased yields per acre of cultivated area by upping sown area somewhat.

U.S. crop yields are generally nearly twice as high as Chinese yields. The gap between yields might be narrowed in the future, however. The Fourth National People's Congress (1975) and subsequent agricultural conferences called for the basic mechanization of agriculture by 1980 and for modernization of agriculture, industry, and technology before the end of the century. China's current leaders seem to be following this directive.

Despite its problems, China's agriculture has come a long way from the days of famine and starvation—everyone now has enough food to eat and enough clothes to wear.

From Aid to Trade

As U.S. farmers bemoan the faltering wheat prices, they may be surprised to learn that India has something to do with their dilemma.

India has enjoyed several bountiful wheat harvests in a row, and stocks have been replenished to the point where the country may not have to import much more wheat in 1977. In fact, India may even join the club of the world's wheat exporters, albeit temporarily.

This is in sharp contrast to the trade picture in the mid-1960's, when India ranked first among the world's wheat-importing countries. As recently as 1975, India was the No. 2 importer, closely behind the U.S.S.R.

India's current wheat abundance has contributed to lower U.S. wheat prices, as have the excellent grain crops in North America, South America, and the Soviet Union.

Wheat for cash. There's a bright side to this story, however. Even though U.S. farmers shipped only 2.1 million tons of wheat to India in the 1976/77 marketing year (June-May)—almost 3 million tons less than the year before—about four-fifths was for hard cash.

Back in the sixties, roughly 95 percent of the American wheat for India moved under P.L. 480, whereby the recipient country pays for the wheat under long-term loan agreements or reinvests funds from the wheat sale in agricultural development projects within the country.

The switch from P.L. 480 to cash deals is not only happening with wheat. In 1976, India paid cash for four-fifths of its farm product imports from the U.S. During 1964-72, more than 95 percent of the shipments involved either P.L. 480 financing or commodity loans from the U.S. Agency for International Development. (During 1964-66, 99 percent of our agricultural exports to India were financed under Government programs.) In 1976, U.S. farmers made record sales to India of $774 million—including $611 million for cash.

Half-billion-dollar customer. Despite the plummet in U.S. wheat exports expected for 1977, U.S. farm products could still ring up sales to India totaling a half billion dollars, thanks mainly to cotton and vegetable oils. That reflects an improving economy, as developing nations go.

The ERS economist who made this analysis lists these vital signs which are likely to continue for some time:

- An increase in India's demand for agricultural products.
- An upswing in industrial output, bolstered by large exports to Mideast customers.
- Rising farm income and gains in per capita income.
- An improved foreign exchange position, so that India has seen fit to liberalize imports of many farm products.

More foreign exchange. Foreign exchange reserves totaled $3.3 billion in June 1977—nearly triple the level recorded 2 years earlier. India's total exports reached $5 billion in 1976—up from $4.3 billion in 1975 and $2.9 billion in 1973. Much of the growth in foreign exchange has come from funds sent back home by Indian workers in the United Kingdom and the Mideast.

India received $610 million in loans from The World Bank in 1976/77 and repaid $120 million on previous Bank loans. The country will receive grants for food imports, valued at about $300 million in 1977.

India plans to spend about $1 billion in 1977 to import cotton and vegetable oils—10 times the 1975 outlay. U.S. farmers are likely to provide over half of India's vegetable oil import needs in 1977, ranging from 650,000 to 700,000 tons from all sources.

Record U.S. soybean oil exports. Most of the U.S. vegetable oil business will be soybean oil, with exports estimated between 300,000 and 350,000 tons, worth $175-200 million. The most soybean oil we ever shipped to India was 157,000 tons, back in 1971.

U.S. exports of peanut oil will come in second. They'll be up from 1976's 15,500 tons, without saying how much.

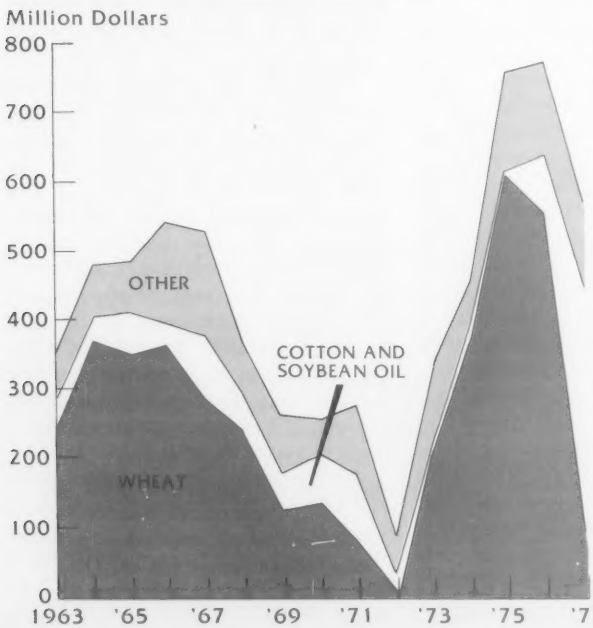
When it came to cotton, U.S. farmers couldn't sell a bale to India in 1973-75, when Egypt, Sudan, the U.S.S.R., and East Africa had a corner on the market. But the U.S. is back in the ring, and U.S. cotton sales to India could mount to 450,000 bales this year, even higher if India has problems getting cotton from Latin America and Sudan. Potential export value: $180-220 million. Cotton will move ahead of wheat to become the No. 1 U.S. farm export to India this year, followed by soybean oil.

Other U.S. farm shipments. Going down the list of other U.S. farm products sent to India, dry milk exports should show a hefty gain this year under P.L. 480 ($11.2 million in 1976). Our cash tallow sales could more than triple the 14,000 tons shipped in 1976, when the value was $5 million; India's soap output is booming.

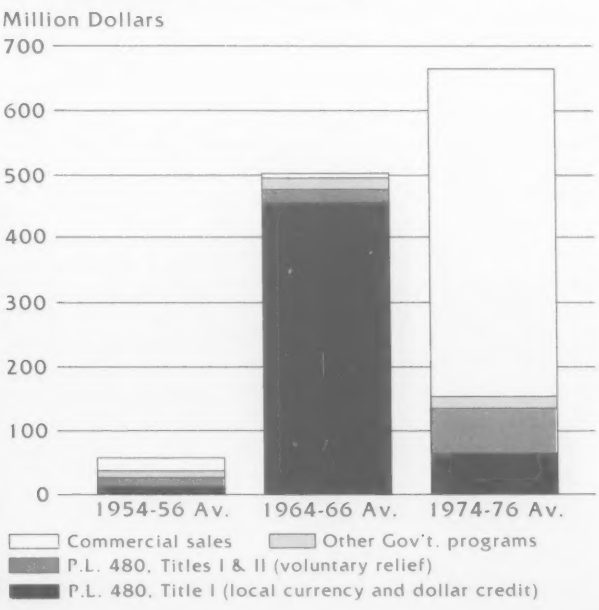
The news is bad for rice, however; only U.S. sales for voluntary relief agencies are on the horizon. U.S. grain sorghum looks more promising, but sales are unlikely to reach the $23 million exported last year.

[Based on special material from John Parker, Foreign Development and Competition Division.]

U.S. Farm Exports to India

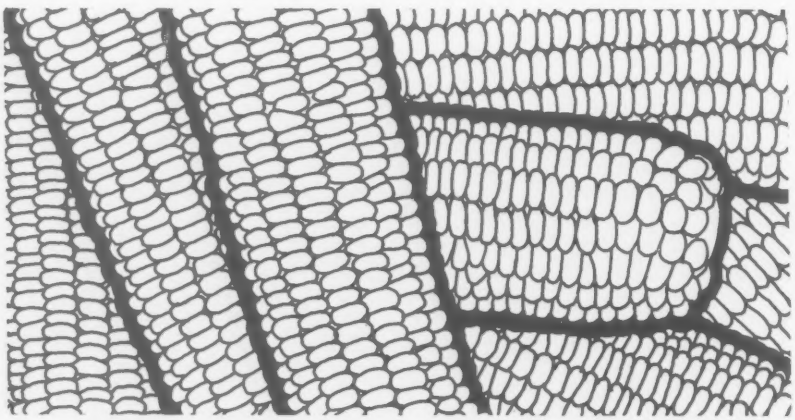


U.S. Farm Exports to India by Method of Financing



Commodity Profile

The All-American Grain



From a wild strain with ears no bigger than a thumb to the leading U.S. crop in acreage planted—that's the progress of corn, the native American grain.

Today, it accounts for one-fifth of the acreage planted to major crops. It takes that large a share because where corn can be grown, it usually gives the highest returns among the feed grain alternatives—the others being sorghum, oats, and barley—considering production costs, yields, and prices.

Technically, the crop is yellow field corn (not including sweet corn, white corn, or popcorn). It is by far the leading grain fed to livestock and poultry to help satisfy the Nation's demand for meat, milk, and eggs.

An adaptable crop. While corn is grown in 41 of the 50 States, the bulk is harvested in 11 Midwest States—the Corn Belt. This region grows 85 percent of the Nation's field corn, with Iowa and Illinois each providing about a fifth. Next come Indiana and Nebraska, which account for about a tenth each.

Outside the Corn Belt, no single State produces more than 1-2 percent of the total corn crop.

The wide geographical spread is the result of corn's adaptability. However, the humid climate and deep, medium-textured, moisture-retentive soils of the Corn Belt are ideal for the production of corn.

Except for pockets of high yields elsewhere, the Corn Belt yields lead the Nation. In Illinois, for example, farmers averaged yields of 20-30 bushels per acre higher than the national average during the past 2 years. The record national average yield, set in 1972, is 97 bushels.

Big production. High yields and large acreages spell big production, when weather cooperates—and in recent years it has. Corn production has been very high, except for 1974, when production dipped to 4.7 billion bushels as adverse weather hit the crop. In other years, production has been higher: 1973, 5.6 billion; 1975, 5.8 billion; and 1976, 6.2 billion.

Farmers this season may see bumper production. Depending on the weather through the growing and harvesting season, 1977 production could set another record. However, low soil moisture in major producing States makes the crop more dependent than normal on this season's rainfall.

The bountiful yields and record production of recent years are a long way from the corn of the first Americans. Hybridization is a major reason.

As early as 1877, Americans were experimenting with cross breeding the five major strains—dent, flint, flour, pod, and waxy. As a result, nearly all corn grown in this country today is a relative of several of these types.

The payoff. In the 1930's, the experiments began paying off, and some farmers began getting higher yields and greater production. In 1930, less than 0.1 percent of the corn acreage was planted to hybrid varieties. By the 1940's, hybrids dominated in the Midwest, and were spreading. The rest of the Nation was not as quick to adopt hybrids as the Corn Belt, because different strains had to be developed for different areas, but by 1956, over 90 percent of the U.S. corn was hybrid. Today, nearly all of it is.

All the production has helped push American corn more and more into world trade. About one-fourth of the corn crop went for export during the past few years. Moreover, U.S. exports account for fully half the corn

in world trade, even though quantities are grown over much of the globe. Exports in 1975/76 were record-large at 1.7 billion bushels, and they're expected to be about the same this year—but for different reasons. Last season, the U.S.S.R. bought huge quantities of U.S. corn, but in 1976, the Soviet Union's feed grain crop was much larger, and purchases of U.S. corn in 1976/77 are smaller. But in other parts of the world there's a different story.

No slack. With the drought in Western Europe in 1976 and increased demand for feed grains in Japan, the need for U.S. corn continued strong. And these outlets are picking up the slack left by the decreased Soviet purchases.

USDA estimates for this year's corn exports indicate a brisk trade. As of June 5, 1.2 billion bushels, or 70 percent of the estimated total for the year, had been exported. On the average, corn has been sold overseas this year at the rate of 34 million bushels a week.

The bulk of U.S. corn, though, is consumed in the U.S., by livestock and poultry. The 1976/77 total will probably be near the 3.6 billion bushels fed in 1975/76. Feeding has been surprisingly sluggish so far this season, despite increased output of meat, milk, and eggs.

Analysts expect that feeding may pick up some during the last part of the year if grain prices stay comparatively low and livestock markets strengthen. In these events, livestock producers may begin to step up feeding rates and market their animals at heavier weights.

Pressure from wheat. But all is not well for corn farmers. Their grain is already encountering more competition from wheat feeding, since wheat at many country points is priced below corn.

Coupled with heavy wheat feeding, corn farmers are also faced with prospects for lower average prices in 1977/78 if larger coarse grain supplies materialize here and abroad. Old-crop corn stocks are climbing to nearly a billion bushels, the highest level since 1972, when they were 1.1 billion. And prices at the farm were running only $2.21 in May, down from $2.61 a year earlier.

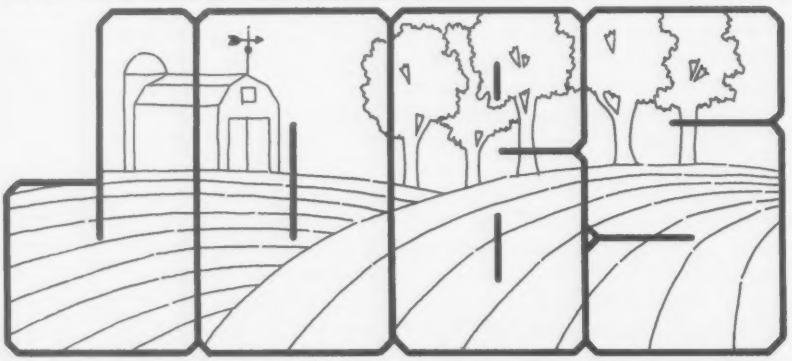
Price and production are only part of the problem for farmers. There's also the increased costs of doing business. During 1972-76, farmers' production expenses soared more than 50 percent. It now costs an average $137 to produce an acre of corn, excluding land charges, compared with $116 in 1974. Although the rate of cost increases has slowed considerably, they're expected to continue upward.

[Based on material compiled by the Grains and Feeds Program Area, Commodity Economics Division; and on special material from Wayne D. Rasmussen, National Economic Analysis Division.]

COMMODITY PROFILE: CORN

Production:	6.2 billion bushels in 1976, a record.
Value:	$14 billion in 1976.
Leading States:	Iowa, Illinois, Indiana, Nebraska.
Exports:	About 1.7 billion bushels in 1975/76, a record.
Trends:	Rising incomes and population both here and abroad are increasing demand for meat, milk, and eggs, creating a larger outlet for U.S. corn.

Where the Jobs Are



Job hunters trudging the streets of metropolitan areas might have better luck on the byways of small-town America. ERS's latest tally of nonfarm job gains across the Nation shows that rural and other small communities outdid the large metro centers during March 1970-77 —by a rate of 2 to 1.

Nonmetro employment in the 7-year period spurted 22 percent (3.8 million) versus 11 percent (5.8 million) for the metro areas. Altogether, the nonmetro areas came in for 40 percent of nearly 10 million nonfarm wage and salary jobs added since 1970.

Employment increases in rural and other smaller labor market areas were paced by services, mining, the FIRE group (finance, insurance, and real estate), construction, and trade.

Services take the lead. Service jobs in nonmetro areas grew 39 percent, compared with 28 percent for the larger job centers. Much of the credit belongs to strong community action for better medical and health services.

Mining came in a close second, with a 36-percent gain in nonmetro areas (20 percent for the metro centers), due to the energy crisis and increasing demand for coal, oil, and gas.

The FIRE group reported employment growth of 34 percent in the 1970-77 period, nearly double the 18 percent of the metro areas. Rapid expansion of banking and credit, insurance, and real estate services in small communities was mainly responsible.

Construction jobs. Construction employment in rural and other small communities primarily reflected widespread improvements in housing, additions of small shopping centers, clinics, public water and sewer systems, and renovations of both public buildings and downtown business and industrial districts.

Jobs in the trade category mounted a healthy 30 percent in nonmetro areas (18 percent in metro), thanks to rising household incomes that spurred demand for new eating places and retail shops. The extension of the interstate highway network was also instrumental: It encouraged increased travel by vacationers and the establishment of wholesale distribution centers away from congested traffic areas.

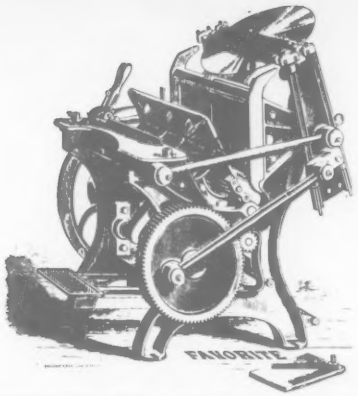
In manufacturing, neither the metro nor the nonmetro communities have anything to crow about, but here again, the smaller communities came out ahead. Nonmetro communities experienced modest gains (6

JOB CHANGES IN NONMETRO AND METRO AREAS, 1970-77 [1]

Designation	Overall Mar 70-Mar 77		Decline Mar 70-Mar 71		Upturn Mar 71-Mar 74		Decline Mar 74-Mar 75		Upturn Mar 75-Mar 77	
	Thous.	*Pct.*	*Thous.*	*Pct.*	*Thous.*	*Pct.*	*Thous.*	*Pct.*	*Thous.*	*Pct.*
NONMETRO [2]	3,823	22	53	[5]	2,534	15	−398	−2	1,634	8
Mining	148	36	2	[5]	38	9	40	8	68	14
Construction	262	32	−6	−1	281	35	−115	−12	102	10
Manufacturing	323	6	−211	−4	771	16	−718	−14	481	10
TCU [3]	126	14	10	1	94	10	−28	−3	50	5
Trade	1,007	30	74	2	566	16	77	2	290	7
FIRE [4]	183	34	12	2	112	20	15	2	44	7
Services	916	39	93	4	375	16	150	5	298	10
Government	858	23	79	2	297	8	181	4	301	7
METRO	5,815	11	−784	−1	5,429	10	−1,193	−2	2,363	4
Mining	43	20	−3	−1	17	8	14	6	15	6
Construction	−47	−2	−88	−3	474	19	−466	−18	33	1
Manufacturing	−1,085	−7	−1,169	−8	832	6	−1,257	−10	509	4
TCU [3]	−14	[5]	−35	−1	147	4	−123	−3	−3	[5]
Trade	2,039	18	17	[5]	1,278	11	−24	[5]	768	6
FIRE [4]	547	18	50	2	383	12	−2	[5]	116	3
Services	2,562	28	146	2	1,512	17	209	2	695	6
Government	1,770	20	298	3	786	9	456	4	230	2

[1] Adapted from State employment security agency estimates for respective months and years, seasonally adjusted. [2] Includes some 50 smaller Standard Metropolitan Statistical Areas, but excludes approximately 330 rural and other fringe counties. [3] Transportation, communications, and utilities groups. [4] Finance, insurance, and real estate groups. [5] Less than 0.5-percent increase or decrease.

Recent Publications



percent, or 300,000), whereas metro centers had a sizable decrease (7 percent, or 1.1 million).

With less than 10 percent of 1970-77 job gains in nonmetro areas occurring in manufacturing, it's possible that for some years to come, industrial decentralization may not play the same dominant role in rural growth as it had in the 1960's.

Recession's impact. The 1969-70 downturn in the U.S. economy had little effect on employment in the nonmetro areas, but the 1974-75 recession hit them as hard as anywhere else.

As in the metro areas, recovery from the 1974-75 recession was slow and uncertain. With the spurt in economic activity in recent months, job gains are again outpacing the larger employment centers.

Regionally, 1970-77 nonmetro job gains in the Northeast of 13 percent barely offset losses in its metro centers. In the North Central region, employment increases were more favorable, but both metro (7 percent) and nonmetro (16 percent) gains were below U.S. additions.

Nonmetro West a standout. In both the South and West, gains in metro centers of 22 and 21 percent matched the national increase for the nonmetro areas. The South's smaller communities posted an increase of 26 percent. The addition in the nonmetro West—stimulated by vigorous job growth in every major industry group—was 38 percent, almost double the nationwide figure for nonmetro areas.

[Based on special material by Claude C. Haren, Economic Development Division.]

Single copies of the publications listed here are available free from The Farm Index, Economic Research Service, Rm. 1664-So., U.S. Department of Agriculture, Washington, D.C. 20250. However, publications indicated by (*) may be obtained only by writing to the experiment station or university. For addresses, see July and December issues of The Farm Index.

U.S.S.R. Agricultural Situation, Review of 1976 and Outlook for 1977. Centrally-Planned Countries Program Area, Foreign Demand and Competition Division. FAER-132.

Even though the 1976 Soviet agricultural output fell 2.5 percent below U.S.S.R. plans, the output was well above 1975's drought-induced low levels. Gains were recorded for sugarbeets, cotton, vegetables, and fruits. Production of sunflowerseeds and potatoes, however, was disappointing. The outlook for 1977 is also discussed.

Constrained Input-Output Simulations of Energy Restrictions in the Food and Fiber System. J. B. Penn and George D. Irwin, National Economic Analysis Division. AER-280.

The indirect or "hidden" effects of energy shortages and allocation schemes within the U.S. may produce economic impacts far different from what might be presumed. Effects of such shortages and a variety of allocation plans on agriculture may be quite different from the effects on the Nation as a whole. This report examines the alternatives in four simulations, and draws conclusions from the results.

Cane Sugar Supply Response in the United States. G. A. Zepp, Commodity Economics Division. AER-370.

Raw sugar prices between $9 and $16 per cwt. would elicit the strongest supply response in the domestic cane sugar industry. The report also looks at future regional variations in cane sugar production, and at what would happen to cane production if prices for commodities competing for acreage go up.

Flue-Cured Tobacco Mechanization and Labor: Impacts of Alternative Production Levels. Frederic L. Hoff, William D. Givan, Owen K. Shugars, and Verner N. Grise, Commodity Economics Division. AER-368.

Modern bulk curing systems are in the lead of the transition in the flue-cured tobacco industry. With the rapid shift to mechanization in the tobacco curing process and harvesting, impacts on employment are assessed.

Sheep and Lamb Losses to Predators and Other Causes in the Western United States. C. Kerry Gee, Richard S. Magleby, Warren R. Bailey, Russell L. Gum, and Louise M. Arthur, Natural Resource Economics Division. AER-369.

This survey concludes that coyotes are the major predators of sheep in the western States, according to the farmers and ranchers questioned. The result of the predation: $27 million in losses to sheep raisers, and $10 million in lost benefits to consumers because of higher prices for lamb and reduced quantities available.

Beet Sugar Supply Response in the United States. Edward V. Jesse, Commodity Economics Division. AER-371.

An econometric model is used in this report to project U.S. sugarbeet acreage using various prices for raw sugar, and for major crops that compete with beets for acreage. One finding: Raw sugar prices of about 16 to 22 cents per pound will be needed to maintain the 1976 sugarbeet acreage level in 1980.

Indices of Agricultural Production for the Western Hemisphere, Excluding the United States and Cuba, 1967 through 1976. Developing Countries Program Area, Foreign Demand and Competition Division. Stat. Bul.-569.

The food and other agricultural production of the Western Hemisphere is listed in this book of tables, prepared as part of a continuing assessment of the current world agricultural situation. The United States Agency for International Development provided some financial assistance in researching and preparing the output indices.

Economic Effects of the 1976 Beef Grade Changes. Kenneth E. Nelson, Commodity Economics Division. Tech. Bul.-1570.

An econometric analysis of the changes in beef grades, which went into effect in February 1976, shows that at least some of the goals of the changes have been met. Beef is bringing prices now based more on quality of individual carcasses, but consumers have not changed their buying habits significantly.

Western Hemisphere Agricultural Situation, Review of 1976 and Outlook for 1977. Developing Countries Program Area, Foreign Demand and Competition Division. FAER-136.

Another record year for agriculture in the Western Hemisphere has been logged, exceeding the previous record by 4 percent. Among the largest increases was a 6-percent rise in food commodity output. The agricultural production of the individual Western Hemisphere countries, including the contributions of coffee-producing countries, are examined, and the outlook for the coming year is assessed.

Asia and Oceania Agricultural Situation, Review of 1976 and Outlook for 1977. Asia Area, Foreign Demand and Competition Division. FAER-133.

Little changed during 1976 in the agricultural production of Asian and Oceania countries. On a regional basis, per capita agricultural and food production declined in specific areas, while other areas showed record food output. The whole picture affects U.S. agricultural exports, and may have more effects in the coming season.

Foreign Agricultural Trade Policy of the United States, 1776-1976. Robert L. Tontz, Foreign Demand and Competition Division. ERS-662.

A chronicle of American agricultural trade through the first 200 years is presented. Included are the numerous modifications to the policy of free trade, adopted over the years, with special emphasis on tariff acts.

25 Years of Housing Progress in Rural America. Ronald Bird and Ronald Kampe, Economic Development Division. AER-373.

The quarter-century from 1950 to 1975 in America saw housing stocks increase 71 percent, while population increased only 42 percent. With more housing available, the number of households in substandard units declined from 15.2 million to 3.8 million. This report explains the housing trends in the U.S., and their effects on rural America.

Livestock and Meat Statistics, Supplement for 1976. Polly Cochran and Barbara Sikora, Commodity Economics Division. Stat. Bul.-522.

This fourth supplement to the major *Livestock and Meat Statistics* updates and augments material first published in 1958. The latest bulletin contains long-term historical series regarding livestock and meat, starting with 1950.

International Organizations and Agricultural Development. Martin Kriesberg, Foreign Demand and Competition Division. FAER-131.

This report describes major international organizations with programs to help low-income countries improve their agriculture and rural sectors. It covers the objectives of multilateral aid organizations, the types of work they do, and the amount of assistance they provide. The publication focuses particularly on the activities of the World Food Conference of 1974, but also describes trends in multilateral assistance for the past 12 to 15 years.

Economic Trends

[1] Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates. [2] Average annual quantities of farm food products purchased by urban wage earner and clerical worker households (including those of single workers living alone) in 1959-61—estimated monthly. [3] Annual and quarterly data are on 50-State basis. [4] Annual rates seasonally adjusted first quarter. [5] Seasonally adjusted. [6] As of March 1, 1967. [7] As of March 1, 1975. [8] As of February 1, 1976.

Source: U.S. Dept. of Agriculture (Agricultural Prices, Foreign Agricultural Trade, and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Monthly Retail Trade Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale and Consumer Price Index).

Item	Unit or Base Period	1967	1976 Year	1976 May	1977 Mar.	1977 April	1977 May
Prices:							
Prices received by farmers	1967=100	—	186	191	190	191	194
Crops	1967=100	—	197	198	211	214	214
Livestock and products	1967=100	—	177	185	171	172	176
Prices paid, interest, taxes and wage rates	1967=100	—	192	191	201	204	204
Prices paid (living and production)	1967=100	—	188	187	196	198	200
Production items	1967=100	—	193	193	201	204	205
Ratio [1]	1967=100	—	97	100	95	94	95
Wholesale prices, all commodities	1967=100	—	182.9	181.9	191.9	194.3	195.2
Industrial commodities	1967=100	—	182.3	180.5	191.6	193.2	194.2
Farm products	1967=100	—	191.1	192.6	202.4	208.1	204.3
Processed foods and feeds	1967=100	—	178.0	179.9	183.9	188.5	192.0
Consumer price index, all items	1967=100	—	170.5	169.2	178.2	179.6	180.6
Food	1967=100	—	180.8	180.0	188.6	190.9	191.7
Farm Food Market Basket: [2]							
Retail cost	1967=100	—	175.4	175.2	178.3	179.1	178.0
Farm value	1967=100	—	178.8	181.2	178.0	179.1	180.5
Farm-retail spread	1967=100	—	173.2	171.4	178.5	179.1	176.4
Farmers' share of retail cost	Percent	—	40	40	39	39	39
Farm Income: [3]							
Volume of farm marketings	1967=100	—	121	98	97	92	96
Cash receipts from farm marketings	Million dollars	42,817	94,793	6,653	6,538	6,248	6,500
Crops	Million dollars	18,434	47,802	2,673	2,674	2,360	2,300
Livestock and products	Million dollars	24,383	46,991	3,980	3,864	3,882	4,200
Realized gross income [4]	Billion dollars	49.9	104.2	—	101.5	—	—
Farm production expenses [4]	Billion dollars	38.2	80.9	—	79.0	—	—
Realized net income [4]	Billion dollars	11.7	23.3	—	22.5	—	—
Agricultural Trade:							
Agricultural exports	Million dollars	6,380	22,996	1,848	2,293	2,209	2,199
Agricultural imports	Million dollars	4,452	10,992	848	1,300	1,404	1,257
Land Values:							
Average value per acre	Dollars	168 [6]	—	390 [8]	456 [8]	—	—
Total value of farm real estate	Billion dollars	182 [6]	—	427.6 [8]	495.5 [8]	—	—
Gross National Product: [4]	Billion dollars	796.3	1,691.6	—	1,799.3	—	—
Consumption	Billion dollars	490.4	1,079.7	—	1,159.1	—	—
Investment	Billion dollars	120.8	239.6	—	267.9	—	—
Government expenditures	Billion dollars	180.2	365.6	—	378.5	—	—
Net exports	Billion dollars	4.9	6.6	—	−6.2	—	—
Income and Spending: [5]							
Personal income, annual rate	Billion dollars	626.6	1,375.3	1,362.9	1,486.5	1,497.7	1,507.2
Total retail sales, monthly rate	Million dollars	26,151	54,324	52,868	59,522	59,572	59,998
Retail sales of food group, monthly rate	Million dollars	5,759	11,749	11,629	12,403	12,556	12,761
Employment and Wages: [5]							
Total civilian employment	Millions	74.4	87.5	87.6	89.5	90.0	90.4
Agricultural	Millions	3.8	3.3	3.3	3.1	3.3	3.4
Rate of unemployment	Percent	3.8	7.7	7.3	7.3	7.0	6.9
Workweek in manufacturing	Hours	40.6	40.0	40.3	40.4	40.2	40.4
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	5.19	5.12	5.48	5.52	5.57
Industrial Production: [5]	1967=100	—	129.8	129.6	135.2	136.3	137.8
Manufacturers' Shipments and Inventories: [5]							
Total shipments, monthly rate	Million dollars	46,487	98,184	98,191	111,443	109,553	—
Total inventories, book value end of month	Million dollars	84,527	166,587	159,488	169,379	170,747	—
Total new orders, monthly rate	Million dollars	47,062	98,513	99,025	111,927	111,625	—

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